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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,931	01/19/2007	James Bayliss	DNI-0025	6144

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EXAMINER	
LEE, BENJAMIN P	
ART UNIT	PAPER NUMBER
3641	

NOTIFICATION DATE	DELIVERY MODE
10/28/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/553,931	BAYLISS ET AL.	
	Examiner	Art Unit	
	BENJAMIN P. LEE	3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 July 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-15,19,20 and 24-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-15,19,20 and 24-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 7, 8, 12, 13, 15, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Posson et al. (U.S. Patent 4,220,087).

3. In regards to claims 7 and 19, Posson et al (henceforth referred to as Posson) disclose a signal transmission tube comprising a reactive polymeric material configured as a solid elongate rod and disposed within a confinement tube having an inner wall defining an interior of the confinement tube and wherein the reactive polymeric material rod is configured to provide a continuous longitudinally extending unoccupied portion of the interior of the confinement tube. Note that the “rod” portion of Posson is taught to be a solid reactive formulation of a polymeric material binder with a fuel and oxidizer mixture (col. 2, lines 1-26) and that the shape of the rod provide for unoccupied space in the interior of the tube as illustrated in figure 8. Note that Posson teaches that the material is a non-detonative material.

4. In regards to claim 8, Posson discloses the interior of the confinement tube is substantially free of unembedded pulverulent reactive material. Note that Posson teaches that the reactive material is a solid mixture of a polymeric binder with particulate fuel and oxidizer mixed in and there is no free powder form material or coating.

5. In regards to claim 12, Posson teaches that the rod is configured to have one or more radially extending portions thereof act as spacers between the rod and the inner wall of the confinement tube whereby to define between the rod and the inner wall the continuous, longitudinally extending unoccupied portion. Posson teaches an embodiment that includes radially extending portions as depicted in figure 8.

6. In regards to claim 13, Posson teaches that the rod is configured to have a longitudinal bore extending therethrough defining the continuous, longitudinally extending unoccupied portion. Posson teaches an embodiment that includes an internal rod configuration that has a bore therethrough as depicted in figure 5.

7. In regards to claims 15 and 20, Posson teaches making a signal transmission tube which tube consists of a reactive polymeric material having one or more pulverulent reactive materials blended therein. Note that Posson teaches making a fuse that incorporates non-detonative reactive material that has particulate reactive material embedded within a polymeric binder.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 9, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Posson et al. (U.S. Patent 4,220,087) in view of Manzara et al. (U.S. Patent 5,681,904).

9. In regards to claims 9 and 24, Posson fails to disclose that the reactive polymeric material comprises a GAP material. However, Manzara et al (henceforth referred to as Manzara) teaches using GAP material as an energetic material (col. 3, lines 34-50). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to utilize any of various reactant materials as the energetic material of Posson

including GAP such as described by Manzara, since GAP provides a non-detonative base material for energetic fuse applications.

10. In regards to claim 25, Posson as modified by Manzara discloses a GAP resin that has been cross-linked by a multifunctional dipolarophile material. Note that the reactive polymer of Manzara is disclosed as being cross-linked by a multifunctional dipolarophile material (col. 2, lines 10-45).

11. Claims 1, 2, 14, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Posson et al. (U.S. Patent 4,220,087) in view of Woodall et al. (U.S. Patent 6,694,886).

12. In regards to claims 1 and 14, Posson discloses a method for making a signal transmission tube comprising:

an elongate rod. Note that core of the tubular fuse of Posson constitutes a rod (item 16);

a confinement tube having an inner wall defining an interior of the confinement tube. Note that Posson teaches creating a tubular structure indicated as the outer tubular form in figures 1-10;

the rod being comprised of a solid reactive polymeric material and configured to provide a continuous longitudinally extending unoccupied portion of the interior of the confinement tube. Note that the “rod” portion of Posson is taught to be a

solid reactive formulation of a polymeric material binder with a fuel and oxidizer mixture (col. 2, lines 1-26) and that the shape of the rod provide for unoccupied space in the interior of the tube as illustrated in figure 8. Note that Posson teaches that the material is a non-detonative material;

Posson fails to explicitly teach that the "confinement tube" is extruded over the rod (extruding the reactive polymeric material into tubular form). However, Woodall et al (henceforth referred to as Woodall) teaches a reactive tubular cord with an outer layer extruded over an inner portion (col. 9, lines 10-28). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to manufacture the structure of Posson using various methods including extruding the components individually or together as taught by Woodall, to provide a consistent continuous tubular form.

13. In regards to claim 2, Posson discloses the interior of the confinement tube is substantially free of unembedded pulverulent reactive material. Note that Posson teaches that the reactive material is a solid mixture of a polymeric binder with particulate fuel and oxidizer mixed in and there is no free powder form material or coating.

14. In regards to claims 26 and 27, Posson teaches a signal transmission tube comprising a reactive polymeric material in tubular form and a sheath over the resulting tubular reactive polymeric tube and further the sheath being configured to be fractured by reaction of the reactive polymeric material. Posson teaches an embodiment that

includes a reactive polymeric material in the form of a tube and a outer layer constituting a sheath (see item 17 of figure 5). Additionally, the outer “sheath” of Posson is configured as a frangible portion that is ruptured during combustion of the core and at least partially "consumed". Posson fails to explicitly teach that the tube and/or sheath are extruded (extruding the reactive polymeric material into tubular form or extruding a sheath over the tubular form). However, Woodall teaches a reactive tubular cord with an outer layer extruded over an inner portion (col. 9, lines 10-28). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to manufacture the structure of Posson using various methods including extruding the components (inner tubular form and sheath) individually or together as taught by Woodall, to provide a consistent continuous tubular form.

15. Claims 3, 4, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Posson et al. (U.S. Patent 4,220,087) and Woodall et al. (U.S. Patent 6,694,886) as applied to claim 1 above, and further in view of Manzara et al. (U.S. Patent 5,681,904).

16. In regards to claims 3 and 28, Posson fails to disclose that the reactive polymeric material comprises a GAP material. However, Manzara teaches using GAP material as an energetic material (col. 3, lines 34-50). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to utilize any of various reactant materials as the energetic material of Posson including GAP such as described

by Manzara, since GAP provides a non-detonative base material for energetic fuse applications.

17. In regards to claims 4 and 29, Posson as modified by Manzara discloses a GAP resin that has been cross-linked by a multifunctional dipolarophile material. Note that the reactive polymer of Manzara is disclosed as being cross-linked by a multifunctional dipolarophile material (col. 2, lines 10-45).

18. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Persson et al. (U.S. Patent 3,590,739) in view of Manzara et al. (U.S. Patent 5,681,904).

19. In regards to claims 5 and 10, Persson et al (henceforth referred to as Persson) disclose a method for making a signal transmission tube comprising:

- forming a confinement tube having an inner wall defining an interior of the confinement tube. Persson teaches that a "confinement tube" is formed with an inner wall as depicted in figures 4-9;
- disposing a layer of paint on the inner wall of the confinement tube. Note that Persson teaches that the reactive material must adhere to the interior of the tube and further that the reactive material can be a liquid explosive constituting a "paint";

Persson fails to teach that the reactive material is a polymeric material. However, Manzara teaches using a polymer as a base for an energetic material (col. 3, lines 34-50). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to utilize any of various reactant materials on the interior of the tube of Persson including a polymer based reactant material such as described by Manzara, since a polymer provides an ideal base material for coating and distributing on a surface, providing variable consistencies etc.

- the reactive polymeric material is configured to provide a continuous, longitudinally extending unoccupied portion of the interior of the confinement tube. Note that the liquid material disclosed by Persson to be adhered to the inner surfaces of the fuse constitutes a reactive material.

20. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Posson et al. (U.S. Patent 4,220,087) in view of Rabotinsky et al. (U.S. Patent 6,347,566).

21. In regards to claim 10, Posson discloses a confinement tube having an inner wall defining an interior of the confinement tube and a reactive polymeric material configured on the inner wall of the confinement tube. Note that Posson teaches a tubular fuse with a reactive polymeric material on the inner walls of the tubular form (see figure 5 of Posson);

Posson fails to teach that the reactive polymeric material is a paint. However, Rabotinsky et al (henceforth referred to as Rabotinsky) teaches a signal transmission device with a reactive polymeric material "painted" on the inside surface of a tubular form (col. 3, lines 20-47). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to provide the reactive polymeric material of Posson in any of various forms including a paint as taught by Rabotinsky, to provide a simpler means of coating the inner surface of the tubular structure. Further, note that Posson as modified by Rabotinsky disclose that the paint is configured to provide a continuous, longitudinally extending unoccupied portion of the interior of the confinement tube as illustrated in figure 5 of Posson.

22. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Posson et al. (U.S. Patent 4,220,087) and Rabotinsky et al. (U.S. Patent 6,347,566) as applied to claim 10 above, and further in view of Manzara et al. (U.S. Patent 5,681,904).

23. In regards to claim 11, Posson fails to disclose that the reactive polymeric material comprises a GAP material. However, Manzara teaches using GAP material as an energetic material (col. 3, lines 34-50). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to utilize any of various reactant materials as the energetic material of Posson including GAP such as described by Manzara, since GAP provides a non-detonative base material for energetic fuse applications.

Summary/Conclusion

24. Claims 1-5, 7-15, 19, 20 and 24-29 are rejected.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin P. Lee whose telephone number is 571-272-8968. The examiner can normally be reached between the hours of 8:30am and 5:00pm on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Benjamin P. Lee/

Primary Examiner, Art Unit 3641